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=> d his

     (FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002)

     FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
     LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002
L1             8 S GLYCOSYL(A) SULFOTRANSFERASE?
L2         42005 S GST##
L3         18003 S HUMAN AND L2
L4           938 S GST(W)ALPHA
L5           613 S L3 AND L4
L6            38 S HUMAN (A)L4
L7            11 DUP REM L6 (27 DUPLICATES REMOVED)
L8             8 S L7 AND (CLON? OR EXPRESS? OR RECOMBINANT)
L9           420 S L4 AND (GENE? OR COD?)
L10           25 S L6 AND (GENE? OR CLON? OR CODING)
L11            7 DUP REM L10 (18 DUPLICATES REMOVED)
L12            0 S L11 AND (CELL (A)ADHES?)
                 E ROSEN S/AU
L13          711 S E7-E8
L14            0 S L13 AND L6
L15           12 S L13 AND L3
L16            5 DUP REM L15 (7 DUPLICATES REMOVED)
                 E LEE J/AU
                 E LEE J K/AU
L17         3091 S E3
L18            0 S L17 AND L6
L19           17 S L17 AND L3
L20            6 DUP REM L19 (11 DUPLICATES REMOVED)

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* * * * * * * * * * Welcome to STN International * * * * * * * * * *

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NEWS 3	Oct 09	Korean abstracts now included in Derwent World Patents Index
NEWS 4	Oct 09	Number of Derwent World Patents Index updates increased
NEWS 5	Oct 15	Calculated properties now in the REGISTRY/ZREGISTRY File
NEWS 6	Oct 22	Over 1 million reactions added to CASREACT
NEWS 7	Oct 22	DGENE GETSIM has been improved
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NEWS 11	Nov 29	COPPERLIT now available on STN
NEWS 12	Nov 29	DWPI revisions to NTIS and US Provisional Numbers
NEWS 13	Nov 30	Files VETU and VETB to have open access
NEWS 14	Dec 10	WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
NEWS 15	Dec 10	DGENE BLAST Homology Search
NEWS 16	Dec 17	WELDASEARCH now available on STN
NEWS 17	Dec 17	STANDARDS now available on STN
NEWS 18	Dec 17	New fields for DPCI
NEWS 19	Dec 19	CAS Roles modified
NEWS 20	Dec 19	1907-1946 data and page images added to CA and CAplus
NEWS 21	Jan 25	BLAST(R) searching in REGISTRY available in STN on the Web
NEWS 22	Jan 25	Searching with the P indicator for Preparations
NEWS 23	Jan 29	FSTA has been reloaded and moves to weekly updates
NEWS 24	Feb 01	DKILIT now produced by FIZ Karlsruhe and has a new update frequency
NEWS 25	Feb 19	Access via Tymnet and SprintNet Eliminated Effective 3/31/02
NEWS 26	Mar 08	Gene Names now available in BIOSIS

NEWS EXPRESS	February 1 CURRENT WINDOWS VERSION IS V6.0d, CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP), AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002
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FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002

=> file medline embase biosis biotechds scisearch hcaplus ntis lifesci

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.15	0.15

FILE 'MEDLINE' ENTERED AT 08:56:09 ON 20 MAR 2002

FILE 'EMBASE' ENTERED AT 08:56:09 ON 20 MAR 2002

FILE 'BIOSIS' ENTERED AT 08:56:09 ON 20 MAR 2002

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FILE 'SCISEARCH' ENTERED AT 08:56:09 ON 20 MAR 2002

FILE 'HCAPLUS' ENTERED AT 08:56:09 ON 20 MAR 2002

FILE 'NTIS' ENTERED AT 08:56:09 ON 20 MAR 2002

FILE 'LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002


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=> s glycosyl(a) sulfotransferase?
L1            8 GLYCOSYL(A) SULFOTRANSFERASE?

=> s GST##
L2        42005 GST##

=> s human and l2
   7 FILES SEARCHED...
L3        18003 HUMAN AND L2

=> s gst(w)alpha
L4          938 GST(W) ALPHA

=> s l3 and l4
L5          613 L3 AND L4

=> s human (a)l4
   5 FILES SEARCHED...
L6           38 HUMAN (A) L4

=> dup rem l6
PROCESSING COMPLETED FOR L6
L7           11 DUP REM L6 (27 DUPLICATES REMOVED)

=> d 1-11 ibib ab

L7   ANSWER 1 OF 11     MEDLINE                          DUPLICATE 1
ACCESSION NUMBER:    2001038213     MEDLINE
DOCUMENT NUMBER:     20517893   PubMed ID: 10934196
TITLE:               Modulation of glutathione S-transferase alpha by hepatitis
                     B virus and the chemopreventive drug oltipraz.
AUTHOR:              Jaitovitch-Groisman I; Fotouhi-Ardakani N; Schecter R L;
                     Woo A; Alaoui-Jamali M A; Batist G
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CORPORATE SOURCE: Lady Davis Institute of the Sir Mortimer B. Davis Jewish General Hospital, The Center for Translational Research in Cancer, Department of Medicine, McGill University, Montreal, Quebec H3T 1E2, Canada.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Oct 27) 275 (43) 33395-403.
Journal code: HIV. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001124

AB Persistent infection by hepatitis B virus (HBV) and exposure to chemical carcinogens correlates with the prevalence of hepatocellular carcinoma in endemic areas. The precise nature of the interaction between these factors is not known. Glutathione S-transferases (GST) are responsible for the cellular metabolism and detoxification of a variety of cytotoxic and carcinogenic compounds by catalysis of their conjugation with glutathione. Diminished GST activity could enhance cellular sensitivity to chemical carcinogens. We have investigated GST isozyme expression in hepatocellular HepG2 cells and in an HBV-transfected subline. Total GST activity and selenium-independent glutathione peroxidase activity are significantly decreased in HBV transfected cells. On immunoblotting, HBV transfected cells demonstrate a significant decrease in the level of GST Alpha class. Cytotoxicity assays reveal that the HBV transfected cells are more sensitive to a wide range of compounds known to be detoxified by GST Alpha conjugation. Although no significant difference in protein half-life between the two cell lines was found, semi-quantitative reverse transcription-polymerase chain reaction shows a reduced amount of GST Alpha mRNA in the transfected cells. Because the HBV x protein (HBx) seems to play a role in HBV transfection, we also demonstrated that expression of the HBx gene into HepG2 cells decreased the amount of GST Alpha protein. Transient transfection experiments using both rat and **human GST Alpha** (rGSTA5 and hGSTA1) promoters in HepG2 cells show a decreased CAT activity upon HBx expression, supporting a transcriptional regulation of both genes by HBx. This effect is independent of HBx interaction with Sp1. Treatment with oltipraz, an inducer of GST Alpha, partially overcomes the effect of HBx on both promoters. Promoter deletion studies indicate that oltipraz works through responsive elements distinct from AP1 or NF-kappaB transcription factors. Thus, HBV infection alters phase II metabolizing enzymes via different mechanisms than those modulated by treatment with oltipraz.

L7 ANSWER 2 OF 11 LIFESCI COPYRIGHT 2002 CSA
ACCESSION NUMBER: 2000:111488 LIFESCI
TITLE: Differential Binding Affinities of PCBs, HO-PCBs, and Aroclors with Recombinant Human, Rainbow Trout (Oncorhynchus mykiss), and Green Anole (Anolis carolinensis) Estrogen Receptors, Using a Semi-High Throughput Competitive Binding Assay
AUTHOR: Mathews, J.; Zacharewski, T.
CORPORATE SOURCE: Department of Biochemistry and National Food Safety and Toxicology Center, Michigan State University, East Lansing, Michigan 48824-1319, USA
SOURCE: Toxicological Sciences [Toxicol. Sci.], (20000200) vol. 53, no. 2, pp. 326-339.
ISSN: 1096-6080.
DOCUMENT TYPE: Journal
FILE SEGMENT: X

LANGUAGE: English
SUMMARY LANGUAGE: English
AB A comparative study was undertaken to assess the ability of 44 polychlorinated biphenyls (PCBs), 9 hydroxylated PCBs (HO-PCBs), and 8 aroclors at concentrations ranging from 1 nM to 10 mu M to compete with [3H]17 beta -estradiol (E2) for binding to bacterially expressed fusion proteins using a semi-high throughput competitive-binding assay. The fusion proteins consisted of the D, E, and F domains of human (alpha), cloned reptilian (Anolis carolinensis) and recloned rainbow trout (Oncorhynchus mykiss) estrogen receptors (ER) linked to the glutathione S-transferase (GST) protein. GST-hER alpha def (**human**), **GST- alpha** ERdef (reptile) and GST-rtERdef (rainbow trout) fusion proteins exhibited high affinity for E2 with dissociation constants (K sub(d)) of 0.4 plus or minus 0.1 nM, 0.7 plus or minus 0.2 nM, and 0.6 plus or minus 0.1 nM, respectively. Of the 44 PCBs examined, only PCBs 104, 184, and 188 effectively competed with [super(3)H]E2 for binding to the GST-rtERdef protein with IC sub(50) values ranging from 0.4-1.3 mu M. In contrast, these same congeners only caused a 30% displacement of [super(3)H]E2 in GST-hER alpha def and GST- alpha ERdef proteins. Several additional congeners were found to bind to the GST-rtERdef fusion protein, although the degree of interaction varied among congeners. Among the HO-PCBs, 2',3',4',5'-tetrachloro-4-biphenylol and 2,6,2',6'-tetrachloro-4-biphenylol bound to all three fusion proteins with IC sub(50) values ranging from 0.1-0.3 mu M. Dimethyl sulphoxide (DMSO) concentrations of 20% significantly increased the ability of PCBs 104, 184, and 188 to compete with [super(3)H]E2 for binding to the GST-ERdef fusion proteins, whereas at 20% DMSO, a significant reduction in saturable binding was observed. These results demonstrate that ERs from different species exhibit differential ligand preferences and relative binding affinities for PCBs, which can be dramatically affected by DMSO concentration.

L7 ANSWER 3 OF 11 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2000174772 MEDLINE
DOCUMENT NUMBER: 20174772 PubMed ID: 10711630
TITLE: The influence of diet on the regional distribution of glutathione S-transferase activity in channel catfish intestine.
AUTHOR: Gadagbui B K; James M O
CORPORATE SOURCE: Department of Medicinal Chemistry, College of Pharmacy, University of Florida, Gainesville 32610-0485, USA.
CONTRACT NUMBER: ES-05781 (NIEHS)
ES-07375 (NIEHS)
SOURCE: JOURNAL OF BIOCHEMICAL AND MOLECULAR TOXICOLOGY, (2000) 14 (3) 148-54.
Journal code: CYC; 9717231. ISSN: 1095-6670.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200003
ENTRY DATE: Entered STN: 20000407
Last Updated on STN: 20000407
Entered Medline: 20000324
AB There is evidence that glutathione conjugates are the major metabolites formed following systemic uptake of carcinogenic contaminants from the intestine. The effect of commercial diet versus a semi-purified diet on the distribution of glutathione S-transferase (GST) activity was examined in proximal, medial, and distal sections of catfish intestine. The bulk of GST activity with 1-chloro-2,4-dinitrobenzene, ethacrynic acid, and 3H-benzo[a]pyrene-4,5-oxide, and the percent cytosolic protein cross-reacting with anti-catfish GST-pi were in the more proximal segments

and dropped off distally in the two diet groups. However, the total GST-pi cross-reacting protein in the proximal section was significantly higher in fish fed a chow diet. Western blot analysis revealed pi-class GST to be expressed principally in the proximal intestine. Cytosol samples cross-reacted with antibodies to **human GST-alpha**, -mu, and -pi, but not -theta, classes. Alpha-like GST isoforms of MW 26,200 and 24,600, absent in sections from fish fed a purified diet, were differentially expressed only in the distal section of chow-fed fish. These results indicate that diet significantly elicits regional differences in GST protein levels, that components of the commercial chow affect GST protein expression in the distal intestine, and that maintenance diet should be taken into consideration during dietary exposure studies.

L7 ANSWER 4 OF 11 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 3
ACCESSION NUMBER: 1998339046 EMBASE
TITLE: A 47-amino-acid fragment of SV40 T antigen represses transcription from **human GST-alpha**. promoters.
AUTHOR: Sompayrac L.; Jane S.; Lorper M.; Sies H.
CORPORATE SOURCE: L. Sompayrac, Molec. Cellular,/Devtl. Biol. Dept., University of Colorado, Boulder, CO 80309, United States. laurens@Alum.mit.edu
SOURCE: Virology, (30 Sep 1998) 249/2 (275-285).
Refs: 32
ISSN: 0042-6822 CODEN: VIRLAX
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English
AB SV40 T antigen downregulates the expression of an important detoxitication enzyme, glutathione S-transferase .alpha. (GST.alpha.). We show here that the target of this repression is a 14-bp element common to the human GSTA1 and GSTA2 promoters. This element, which we have named TAGR, is also critical for high-level, constitutive expression from these promoters. The TAGR element does not appear to contain a binding site for any transcription factor known to be present in fibroblasts, although the TAGR element does resemble the binding site for the Ikaros transcription factor found in hematopoietic cells. We also have identified a 47-amino-acid fragment of T antigen that includes amino acids 83-100 and 119-147, which is sufficient to repress transcription from the GST.alpha. promoter in transient transcription assays. Thus, GST.alpha. repression does not require binding of T antigen to pRb, p300, or p53, since the domains of T antigen required for binding these cellular proteins are missing from this T antigen fragment. We show, however, that this fragment does bind to three cellular proteins with approximate molecular weights of 54, 59, and 94 kDa.

L7 ANSWER 5 OF 11 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 1998:834534 SCISEARCH
THE GENUINE ARTICLE: 132NF
TITLE: Identification of two activating elements in the proximal promoter region of the human glutathione transferase-A1 and -A2 genes
AUTHOR: Lorper M; Clairmont A; Carlberg C; Sies H (Reprint)
CORPORATE SOURCE: UNIV DUSSELDORF, INST PHYSIOL CHEM 1, POSTFACH 10 10 07, D-40001 DUSSELDORF, GERMANY (Reprint); UNIV DUSSELDORF, INST PHYSIOL CHEM 1, D-40001 DUSSELDORF, GERMANY; UNIV DUSSELDORF, BIOL MED FORSCHUNGSZENTRUM, D-40001 DUSSELDORF, GERMANY
COUNTRY OF AUTHOR: GERMANY

SOURCE: ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS, (1 NOV 1998) Vol. 359, No. 1, pp. 122-127.
Publisher: ACADEMIC PRESS INC JNL-COMP SUBSCRIPTIONS, 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495.
ISSN: 0003-9861.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 21

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Promoter regions derived from the human glutathione S-transferase (GST) alpha gene cluster located on chromosome 6p12 were studied: the identical proximal promoters of the GST A1 and GST A2 genes and a proximal promoter of a pseudogene of this class. The sequence of the pseudogene promoter differs in four single nucleotides at positions -86, -66, -41, and -13, and a noncritical TTT insertion at positions -71 to -69 from the GST A1/A2 promoter. Here, it was shown that the GST A1/A2 proximal promoters differed by a factor of 3.4 in their activity from the proximal pseudogene promoter. Therefore, the functional significance of single base exchanges was examined by introducing individual point mutations at the four positions within the proximal GST A1/A2 promoter. In functional tests in transiently transfected human hepatoblastoma HepG2 cells the base exchange at position -13 showed no effect, whereas mutations at position -41 or -86 diminished the promoter activity to a level comparable to the pseudogene promoter. Promoter fragments of both genes spanning over these four sites were analyzed in a heterologous promoter context for their functionality in HepG2 cells. Moreover, gel shift experiments showed specific binding of nuclear proteins to these promoter fragments. The results show that in the proximal GST A1/A2 promoter the sites at position -41 or -86 are essential for the binding of activating transcription factor complexes. (C) 1998 Academic Press.

L7 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:434914 HCAPLUS
DOCUMENT NUMBER: 129:199061
TITLE: An attempt to predict the response of human glutathione S-transferase (GST) to chemical inducers using transgenic rats harboring human GST gene
AUTHOR(S): Manabe, Sunao; Ando, Yosuke; Ohashi, Yoshihiko; Igarashi, Isao; Yamoto, Takashi; Takaoka, Masaya; Tanase, Hisao; Matsunuma, Naochika; Suzuki, Takashige; Itoh, Kazumi
CORPORATE SOURCE: Laboratory Animal Science and Toxicology Laboratories, Sankyo Co., Ltd, Fukuroi, 437, Japan
SOURCE: J. Toxicol. Pathol. (1997), 10(3), 133-136
CODEN: JTPAE7; ISSN: 0914-9198
PUBLISHER: Japanese Society of Toxicologic Pathology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To study the response of human glutathione S-transferase (GST) to chem. inducers, we have developed a line of transgenic rats which harbor 4.5 kb of **human GST alpha** 1 promoter region in their genome. This promoter is linked to the chloramphenicol acetyltransferase (CAT) reporter gene which allows detn. of the expression of human GST in rat tissues. Three chem. inducers, which show clearly different induction profiles, phenobarbital (PB), .beta.-naphthoflavone (BNF), and butylated hydroxyanisole (BHA), were administered to the transgenic rats. Induction of constitutive rat liver enzymes by the inducers, which was evaluated in terms of the activities of P 450, GST, and UDP-glucuronosyltransferase in the liver tissues, were in agreement with what has been reported for non-transgenic rats. Expression of CAT protein was detected in the liver of the transgenic rats, and an

unequivocal increase in CAT protein was found in the transgenic rats treated with PB. No remarkable changes in CAT protein were obsd. in the transgenic rats treated with BNF or BHA. Moreover, immunohistochem. staining with anti-CAT antibody revealed that the expression and increase of CAT protein were localized in the central zone of the liver lobule. The results of this study suggest that **human GST alpha** 1 is induced by PB, in particular, in the central zone of the liver lobule. The transgenic rat is concluded to be a useful animal model for predicting metabolizing functions in humans.

L7 ANSWER 7 OF 11 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 96176803 MEDLINE
DOCUMENT NUMBER: 96176803 PubMed ID: 8598105
TITLE: Sandwich ELISA for glutathione S-transferase Alpha 1-1: plasma concentrations in controls and in patients with gastrointestinal disorders.
AUTHOR: Mulder T P; Peters W H; Court D A; Jansen J B
CORPORATE SOURCE: Department of Gastroenterology and Hepatology, University Hospital St. Radboud, Nijmegen, The Netherlands.
SOURCE: CLINICAL CHEMISTRY, (1996 Mar) 42 (3) 416-9.
Journal code: DBZ; 9421549. ISSN: 0009-9147.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199604
ENTRY DATE: Entered STN: 19960506
Last Updated on STN: 19980206
Entered Medline: 19960419

AB Class Alpha glutathione S-transferases (GST-Alpha) are found in high concentrations in human liver. Increased plasma concentrations of GSTA1-1, the most abundant isoform of GST-Alpha, are a very sensitive marker for hepatocellular leakage. A sandwich-type ELISA was developed, based on a monoclonal antibody specific for human GSTA1-1 and a polyclonal rabbit anti-**human GST-Alpha** antiserum. The assay is specific for human GSTA1-1, and has a detection limit of 0.04 micrograms/L. The distribution of plasma GSTA1-1 concentrations in 350 blood donors was nearly normalized by logarithmic transformation and an upper normal reference concentration of 5.9 micrograms/L was calculated. Men had significantly higher plasma GSTA1-1 concentrations than women ($P < 0.0001$). In women, but not in men, a significant increase was noted with age ($P < 0.05$). In patients with inflammatory bowel disease (n= 210), gastrointestinal tumors (n= 70), irritable bowel disease (n= 36), or chronic pancreatitis (n= 12), plasma GSTA1-1 concentrations were similar to those of controls. In contrast, plasma GSTA1-1 concentrations were increased to a similar extent as alanine aminotransferase activities in patients with liver disorders (n= 37).

L7 ANSWER 8 OF 11 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 95262669 MEDLINE
DOCUMENT NUMBER: 95262669 PubMed ID: 7744032
TITLE: Turnover of glutathione S-transferase alpha mRNAs is accelerated by 12-O-tetradecanoyl phorbol-13-acetate in human hepatoma and colon carcinoma cell lines.
AUTHOR: Eickelmann P; Morel F; Schulz W A; Sies H
CORPORATE SOURCE: Institut fur Physiologische Chemie I, Heinrich-Heine-Universitat, Dusseldorf, Germany.
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1995 Apr 1) 229 (1) 21-6.
Journal code: EMZ; 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199506
ENTRY DATE: Entered STN: 19950621
Last Updated on STN: 19980206
Entered Medline: 19950615

AB The phorbol ester, 12-O-tetradecanoyl phorbol-13-acetate (TPA), known to induce murine glutathione S-transferase (GST) Ya, was examined for its effect on the expression of **human GST alpha**. Unexpectedly, 24-h treatment of the human hepatoma cell line HepG2 with 100 nmol/l TPA caused a decrease of the GST alpha mRNA level to below 5% of controls, i.e. opposite to the known response in the mouse. The level of mRNA for GST Mu was also decreased, but the mRNAs of c-jun and jun-B were elevated after 2 h. The decrease of GST alpha mRNAs was inhibited by staurosporine, suggesting an involvement of protein kinase C. Inhibition of transcription and translation by actinomycin D and cycloheximide also partially inhibited the effect of TPA on the expression of GST alpha. In the presence of actinomycin D, GST alpha mRNA halflife was 14.5 h, compared to 3.5 h in the presence of TPA. The calcium ionophore A23187 caused a loss of GST alpha mRNAs to levels almost as low as those obtained with TPA. The effects of TPA and the calcium ionophore were also observed in CaCo2 colon carcinoma cells. As a consequence of the decrease of mRNA levels, GST alpha protein levels and total GST enzyme activity were also diminished. Also, the morphology of the cells was changed after 3 h exposure to TPA. These data suggest that **human GST alpha** expression can be regulated at the level of mRNA stability by a pathway involving protein kinase C.

L7 ANSWER 9 OF 11 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 95042378 MEDLINE
DOCUMENT NUMBER: 95042378 PubMed ID: 7954469
TITLE: Involvement of human glutathione S-transferase isoenzymes in the conjugation of cyclophosphamide metabolites with glutathione.
AUTHOR: Dirven H A; van Ommen B; van Bladeren P J
CORPORATE SOURCE: TNO Nutrition and Food Research Institute, Division of Toxicology, Zeist, The Netherlands.
SOURCE: CANCER RESEARCH, (1994 Dec 1) 54 (23) 6215-20.
Journal code: CNF; 2984705R. ISSN: 0008-5472.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199412
ENTRY DATE: Entered STN: 19950110
Last Updated on STN: 19980206
Entered Medline: 19941227

AB Alkylating agents can be detoxified by conjugation with glutathione (GSH). One of the physiological significances of this lies in the observation that cancer cells resistant to the cytotoxic effects of alkylating agents have higher levels of GSH and high glutathione S-transferase (GST) activity. However, little is known about the GSH-/GST-dependent biotransformation of alkylating agents, including cyclophosphamide. Cyclophosphamide becomes cytostatic after the enzymatic formation of 4-hydroxycyclophosphamide. The ultimate alkylating species formed from cyclophosphamide is phosphoramide mustard. In this paper we describe the involvement of purified human glutathione S-transferases isoenzymes GST A1-1, A2-2, M1a-1a, and P1-1 in the formation of two types of glutathionyl conjugates of cyclophosphamide, i.e., 4-glutathionylcyclophosphamide (4-GSCP) and monochloromonoglutathionylphosphoramide mustard. When 0.1 mM 4-hydroxycyclophosphamide and 1 mM GSH was incubated in the presence of 10 microM GST A1-1, A2-2, M1a-1a, and P1-1 the formation of 4-GSCP was

2-4-fold increased above the spontaneous level. Enzyme kinetic analysis demonstrated the lowest Km (0.35 mM) for GST A1-1. Km values for the other GST enzymes ranged from 1.0 to 1.9 mM. Glutathione S-transferase A1-1 (40 microM) also increased the conjugation of phosphoramide mustard and GSH (both 1 mM) 2-fold, while the other major human isoenzymes, A2-2, M1a-1a, and P1-1, did not influence the formation of monochloromonoglutathionylpho sphoramide mustard. These results indicate that only one enzyme within the class of **human GST alpha** enzymes was able to catalyze the reaction of the aziridinium ion of phosphoramide mustard with glutathione. Thus increased levels of GST A1-1 in tumor cells can contribute to an enhanced detoxification of phosphoramide mustard and hence to the development of drug resistance. Since all of the human GSTs tested did catalyze the formation of 4-GSCP, the role of 4-GSCP either as a transport form of activated cyclophosphamide or as a detoxification product is discussed.

L7 ANSWER 10 OF 11 MEDLINE DUPLICATE 7
ACCESSION NUMBER: 94291255 MEDLINE
DOCUMENT NUMBER: 94291255 PubMed ID: 8020149
TITLE: Protection by transfected glutathione S-transferase isozymes against carcinogen-induced alkylation of cellular macromolecules in human MCF-7 cells.
AUTHOR: Fields W R; Li Y; Townsend A J
CORPORATE SOURCE: Biochemistry Department, Bowman Gray School of Medicine, Wake Forest University Comprehensive Cancer Center, Winston-Salem, NC 27157.
CONTRACT NUMBER: 5F31GM14822-02 (NIGMS)
R-55-ES-06006-01 (NIEHS)
SOURCE: CARCINOGENESIS, (1994 Jun) 15 (6) 1155-60.
Journal code: C9T; 8008055. ISSN: 0143-3334.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199408
ENTRY DATE: Entered STN: 19940815
Last Updated on STN: 19980206
Entered Medline: 19940803

AB Increased expression of glutathione S-transferase (GST) isozymes has been correlated with development of resistance both to cytotoxic anticancer agents and to genotoxic carcinogens. While most anticancer agents are poor GST substrates, the model alkylating carcinogen 4-nitroquinoline-1-oxide (NQO) is a good substrate for human pi class GST (hGSTP1-1) and murine GST mu-1 (mGSTM1-1), but not **human GST alpha**-2 (hGSTA2-2). We investigated whether expression of these GST isozymes in stably transfected clonal cell lines could protect against the genotoxic and cytotoxic effects of NQO. Compared to parental MCF-7 or pSV2neotransfected control cell lines, covalent labeling of total cellular macromolecules by [3H]NQO (0.1-1.0 mM) was reduced by 70% and 92% in hGSTP1-1- and mGSTM1-1-transfected cell lines, respectively, but was not affected in the hGSTA2-2 expressing line. The observed protection was closely correlated with the relative specific activity of each cell line for conjugation of NQO by the transfected GST isozymes and this protection was reversible by pretreatment of cells with the GST inhibitor ethacrynic acid. Similar results were obtained when covalent labeling of total cellular nucleic acid or DNA was measured. However, clonogenic survival assays indicated that the sensitivity of these cell lines to the cytotoxic effects of NQO was similar for the control and GST-transfected MCF-7 cell lines. Thus, while expression of hGSTP1-1 and mGSTM1-1 (but not hGSTA2-2) was highly protective against alkylation of cellular macromolecules by NQO, this protection was not effective against cytotoxicity induced by NQO as measured by clonogenic assay. These results indicate that expression of

GST isozymes can protect differentially against the acute genotoxic and potentially mutagenic effects, as compared to the cytotoxic effects, of electrophiles that are detoxified by glutathione conjugation.

L7 ANSWER 11 OF 11 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 94:757819 SCISEARCH
THE GENUINE ARTICLE: PU002
TITLE: PRODUCTION OF MONOCLONAL-ANTIBODIES TO HUMAN PLACENTAL GLUTATHIONE-S-TRANSFERASE AND ITS PRELIMINARY APPLICATION IN COLONIC-CARCINOMA
AUTHOR: LI C H (Reprint); CHEN J M; LI X P; GUO S C; TAN Z X
CORPORATE SOURCE: INST BASIC MED SCI, POB 130, BEIJING 100850, PEOPLES R CHINA (Reprint)
COUNTRY OF AUTHOR: PEOPLES REPUBLIC OF CHINA
SOURCE: JOURNAL OF TUMOR MARKER ONCOLOGY, (WIN 1994) Vol. 9, No. 4, pp. 17-23.
ISSN: 0886-3849.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: CLIN
LANGUAGE: ENGLISH
REFERENCE COUNT: 8

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Human placental glutathione S-transferase (GST-pi) free of human IgG was purified by improved method. Four monoclonal antibodies (MoAbs) against GST-pi were obtained by the fusion of murine myeloma cell Sp2/0 with spleen cells from BALB/c mice immunized with GST-pi. All of four MoAbs reacted only with GST-pi, not with goat GST, rat GST, **human GST-alpha**, GST-mu, IgG and glutahione reductase, when assayed by ELISA and Western blot. ELISA additivity test showed that four MoAbs recognized two groups of different epitopes. Immunohistochemical staining with MoAbs indicated that GST-pi was a useful tumor marker of colonic carcinoma.

=> d his

(FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002

L1 8 S GLYCOSYL(A) SULFOTRANSFERASE?
L2 42005 S GST##
L3 18003 S HUMAN AND L2
L4 938 S GST(W)ALPHA
L5 613 S L3 AND L4
L6 38 S HUMAN (A)L4
L7 11 DUP REM L6 (27 DUPLICATES REMOVED)

=> s l7 and (clon? or express? or recombinant)
5 FILES SEARCHED...
L8 8 L7 AND (CLON? OR EXPRESS? OR RECOMBINANT)

=> d 1-8 ibib ab

L8 ANSWER 1 OF 8 MEDLINE
ACCESSION NUMBER: 2001038213 MEDLINE
DOCUMENT NUMBER: 20517893 PubMed ID: 10934196
TITLE: Modulation of glutathione S-transferase alpha by hepatitis B virus and the chemopreventive drug oltipraz.
AUTHOR: Jaitovitch-Groisman I; Fotouhi-Ardakani N; Schecter R L; Woo A; Alaoui-Jamali M A; Batist G
CORPORATE SOURCE: Lady Davis Institute of the Sir Mortimer B. Davis Jewish

General Hospital, The Center for Translational Research in Cancer, Department of Medicine, McGill University, Montreal, Quebec H3T 1E2, Canada.

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Oct 27) 275 (43) 33395-403.
Journal code: HIV. ISSN: 0021-9258.

PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200011

ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001124

AB Persistent infection by hepatitis B virus (HBV) and exposure to chemical carcinogens correlates with the prevalence of hepatocellular carcinoma in endemic areas. The precise nature of the interaction between these factors is not known. Glutathione S-transferases (GST) are responsible for the cellular metabolism and detoxification of a variety of cytotoxic and carcinogenic compounds by catalysis of their conjugation with glutathione. Diminished GST activity could enhance cellular sensitivity to chemical carcinogens. We have investigated GST isozyme **expression** in hepatocellular HepG2 cells and in an HBV-transfected subline. Total GST activity and selenium-independent glutathione peroxidase activity are significantly decreased in HBV transfected cells. On immunoblotting, HBV transfected cells demonstrate a significant decrease in the level of GST Alpha class. Cytotoxicity assays reveal that the HBV transfected cells are more sensitive to a wide range of compounds known to be detoxified by GST Alpha conjugation. Although no significant difference in protein half-life between the two cell lines was found, semi-quantitative reverse transcription-polymerase chain reaction shows a reduced amount of GST Alpha mRNA in the transfected cells. Because the HBV x protein (HBx) seems to play a role in HBV transfection, we also demonstrated that **expression** of the HBx gene into HepG2 cells decreased the amount of GST Alpha protein. Transient transfection experiments using both rat and **human GST Alpha** (rGSTA5 and hGSTA1) promoters in HepG2 cells show a decreased CAT activity upon HBx **expression**, supporting a transcriptional regulation of both genes by HBx. This effect is independent of HBx interaction with Sp1. Treatment with oltipraz, an inducer of GST Alpha, partially overcomes the effect of HBx on both promoters. Promoter deletion studies indicate that oltipraz works through responsive elements distinct from AP1 or NF-kappaB transcription factors. Thus, HBV infection alters phase II metabolizing enzymes via different mechanisms than those modulated by treatment with oltipraz.

L8 ANSWER 2 OF 8 MEDLINE

ACCESSION NUMBER: 2000174772 MEDLINE

DOCUMENT NUMBER: 20174772 PubMed ID: 10711630

TITLE: The influence of diet on the regional distribution of glutathione S-transferase activity in channel catfish intestine.

AUTHOR: Gadagbui B K; James M O

CORPORATE SOURCE: Department of Medicinal Chemistry, College of Pharmacy, University of Florida, Gainesville 32610-0485, USA.

CONTRACT NUMBER: ES-05781 (NIEHS)
ES-07375 (NIEHS)

SOURCE: JOURNAL OF BIOCHEMICAL AND MOLECULAR TOXICOLOGY, (2000) 14 (3) 148-54.
Journal code: CYC; 9717231. ISSN: 1095-6670.

PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200003
ENTRY DATE: Entered STN: 20000407
Last Updated on STN: 20000407
Entered Medline: 20000324

AB There is evidence that glutathione conjugates are the major metabolites formed following systemic uptake of carcinogenic contaminants from the intestine. The effect of commercial diet versus a semi-purified diet on the distribution of glutathione S-transferase (GST) activity was examined in proximal, medial, and distal sections of catfish intestine. The bulk of GST activity with 1-chloro-2,4-dinitrobenzene, ethacrynic acid, and 3H-benzo[a]pyrene-4,5-oxide, and the percent cytosolic protein cross-reacting with anti-catfish GST-pi were in the more proximal segments and dropped off distally in the two diet groups. However, the total GST-pi cross-reacting protein in the proximal section was significantly higher in fish fed a chow diet. Western blot analysis revealed pi-class GST to be **expressed** principally in the proximal intestine. Cytosol samples cross-reacted with antibodies to **human GST-alpha**, -mu, and -pi, but not -theta, classes. Alpha-like GST isoforms of MW 26,200 and 24,600, absent in sections from fish fed a purified diet, were differentially **expressed** only in the distal section of chow-fed fish. These results indicate that diet significantly elicits regional differences in GST protein levels, that components of the commercial chow affect GST protein **expression** in the distal intestine, and that maintenance diet should be taken into consideration during dietary exposure studies.

L8 ANSWER 3 OF 8 MEDLINE
ACCESSION NUMBER: 95262669 MEDLINE
DOCUMENT NUMBER: 95262669 PubMed ID: 7744032
TITLE: Turnover of glutathione S-transferase alpha mRNAs is accelerated by 12-O-tetradecanoyl phorbol-13-acetate in human hepatoma and colon carcinoma cell lines.
AUTHOR: Eickelmann P; Morel F; Schulz W A; Sies H
CORPORATE SOURCE: Institut fur Physiologische Chemie I, Heinrich-Heine-Universitat, Dusseldorf, Germany.
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (1995 Apr 1) 229 (1) 21-6.
Journal code: EMZ; 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199506
ENTRY DATE: Entered STN: 19950621
Last Updated on STN: 19980206
Entered Medline: 19950615

AB The phorbol ester, 12-O-tetradecanoyl phorbol-13-acetate (TPA), known to induce murine glutathione S-transferase (GST) Ya, was examined for its effect on the **expression** of **human GST alpha**. Unexpectedly, 24-h treatment of the human hepatoma cell line HepG2 with 100 nmol/l TPA caused a decrease of the GST alpha mRNA level to below 5% of controls, i.e. opposite to the known response in the mouse. The level of mRNA for GST Mu was also decreased, but the mRNAs of c-jun and jun-B were elevated after 2 h. The decrease of GST alpha mRNAs was inhibited by staurosporine, suggesting an involvement of protein kinase C. Inhibition of transcription and translation by actinomycin D and cycloheximide also partially inhibited the effect of TPA on the **expression** of GST alpha. In the presence of actinomycin D, GST alpha mRNA halflife was 14.5 h, compared to 3.5 h in the presence of TPA. The calcium ionophore A23187 caused a loss of GST alpha mRNAs to levels

almost as low as those obtained with TPA. The effects of TPA and the calcium ionophore were also observed in CaCo2 colon carcinoma cells. As a consequence of the decrease of mRNA levels, GST alpha protein levels and total GST enzyme activity were also diminished. Also, the morphology of the cells was changed after 3 h exposure to TPA. These data suggest that **human GST alpha expression** can be regulated at the level of mRNA stability by a pathway involving protein kinase C.

L8 ANSWER 4 OF 8 MEDLINE
ACCESSION NUMBER: 94291255 MEDLINE
DOCUMENT NUMBER: 94291255 PubMed ID: 8020149
TITLE: Protection by transfected glutathione S-transferase isozymes against carcinogen-induced alkylation of cellular macromolecules in human MCF-7 cells.
AUTHOR: Fields W R; Li Y; Townsend A J
CORPORATE SOURCE: Biochemistry Department, Bowman Gray School of Medicine, Wake Forest University Comprehensive Cancer Center, Winston-Salem, NC 27157.
CONTRACT NUMBER: 5F31GM14822-02 (NIGMS)
R-55-ES-06006-01 (NIEHS)
SOURCE: CARCINOGENESIS, (1994 Jun) 15 (6) 1155-60.
Journal code: C9T; 8008055. ISSN: 0143-3334.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199408
ENTRY DATE: Entered STN: 19940815
Last Updated on STN: 19980206
Entered Medline: 19940803

AB Increased **expression** of glutathione S-transferase (GST) isozymes has been correlated with development of resistance both to cytotoxic anticancer agents and to genotoxic carcinogens. While most anticancer agents are poor GST substrates, the model alkylating carcinogen 4-nitroquinoline-1-oxide (NQO) is a good substrate for human pi class GST (hGSTP1-1) and murine GST mu-1 (mGSTM1-1), but not **human GST alpha**-2 (hGSTA2-2). We investigated whether **expression** of these GST isozymes in stably transfected **clonal** cell lines could protect against the genotoxic and cytotoxic effects of NQO. Compared to parental MCF-7 or pSV2neotransfected control cell lines, covalent labeling of total cellular macromolecules by [3H]NQO (0.1-1.0 mM) was reduced by 70% and 92% in hGSTP1-1- and mGSTM1-1-transfected cell lines, respectively, but was not affected in the hGSTA2-2 **expressing** line. The observed protection was closely correlated with the relative specific activity of each cell line for conjugation of NQO by the transfected GST isozymes and this protection was reversible by pretreatment of cells with the GST inhibitor ethacrynic acid. Similar results were obtained when covalent labeling of total cellular nucleic acid or DNA was measured. However, **clonogenic** survival assays indicated that the sensitivity of these cell lines to the cytotoxic effects of NQO was similar for the control and GST-transfected MCF-7 cell lines. Thus, while **expression** of hGSTP1-1 and mGSTM1-1 (but not hGSTA2-2) was highly protective against alkylation of cellular macromolecules by NQO, this protection was not effective against cytotoxicity induced by NQO as measured by **clonogenic** assay. These results indicate that **expression** of GST isozymes can protect differentially against the acute genotoxic and potentially mutagenic effects, as compared to the cytotoxic effects, of electrophiles that are detoxified by glutathione conjugation.

L8 ANSWER 5 OF 8 EMBASE

ACCESSION NUMBER: 1998339046 EMBASE
TITLE: A 47-amino-acid fragment of SV40 T antigen represses transcription from **human GST. alpha**. promoters.
AUTHOR: Sompayrac L.; Jane S.; Lorper M.; Sies H.
CORPORATE SOURCE: L. Sompayrac, Molec. Cellular,/Devtl. Biol. Dept., University of Colorado, Boulder, CO 80309, United States. laurens@Alum.mit.edu
SOURCE: Virology, (30 Sep 1998) 249/2 (275-285).
Refs: 32
ISSN: 0042-6822 CODEN: VIRLAX
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English

AB SV40 T antigen downregulates the **expression** of an important detoxitication enzyme, glutathione S-transferase .alpha. (GST.alpha.). We show here that the target of this repression is a 14-bp element common to the human GSTA1 and GSTA2 promoters. This element, which we have named TAGR, is also critical for high-level, constitutive **expression** from these promoters. The TAGR element does not appear to contain a binding site for any transcription factor known to be present in fibroblasts, although the TAGR element does resemble the binding site for the Ikaros transcription factor found in hematopoietic cells. We also have identified a 47-amino-acid fragment of T antigen that includes amino acids 83-100 and 119-147, which is sufficient to repress transcription from the GST.alpha. promoter in transient transcription assays. Thus, GST.alpha. repression does not require binding of T antigen to pRb, p300, or p53, since the domains of T antigen required for binding these cellular proteins are missing from this T antigen fragment. We show, however, that this fragment does bind to three cellular proteins with approximate molecular weights of 54, 59, and 94 kDa.

L8 ANSWER 6 OF 8 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 1998:834534 SCISEARCH
THE GENUINE ARTICLE: 132NF
TITLE: Identification of two activating elements in the proximal promoter region of the human glutathione transferase-A1 and -A2 genes
AUTHOR: Lorper M; Clairmont A; Carlberg C; Sies H (Reprint)
CORPORATE SOURCE: UNIV DUSSELDORF, INST PHYSIOL CHEM 1, POSTFACH 10 10 07, D-40001 DUSSELDORF, GERMANY (Reprint); UNIV DUSSELDORF, INST PHYSIOL CHEM 1, D-40001 DUSSELDORF, GERMANY; UNIV DUSSELDORF, BIOL MED FORSCHUNGSZENTRUM, D-40001 DUSSELDORF, GERMANY
COUNTRY OF AUTHOR: GERMANY
SOURCE: ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS, (1 NOV 1998) Vol. 359, No. 1, pp. 122-127.
Publisher: ACADEMIC PRESS INC JNL-COMP SUBSCRIPTIONS, 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495.
ISSN: 0003-9861.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 21

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Promoter regions derived from the human glutathione S-transferase (GST) alpha gene cluster located on chromosome 6p12 were studied: the identical proximal promoters of the GST A1 and GST A2 genes and a proximal promoter of a pseudogene of this class. The sequence of the pseudogene promoter differs in four single nucleotides at positions -86, -66, -41, and -13,

and a noncritical TTT insertion at positions -71 to -69 from the GST A1/A2 promoter. Here, it was shown that the GST A1/A2 proximal promoters differed by a factor of 3.4 in their activity from the proximal pseudogene promoter. Therefore, the functional significance of single base exchanges was examined by introducing individual point mutations at the four positions within the proximal GST A1/A2 promoter. In functional tests in transiently transfected human hepatoblastoma HepG2 cells the base exchange at position -13 showed no effect, whereas mutations at position -41 or -86 diminished the promoter activity to a level comparable to the pseudogene promoter. Promoter fragments of both genes spanning over these four sites were analyzed in a heterologous promoter context for their functionality in HepG2 cells. Moreover, gel shift experiments showed specific binding of nuclear proteins to these promoter fragments. The results show that in the proximal GST A1/A2 promoter the sites at position -41 or -86 are essential for the binding of activating transcription factor complexes. (C) 1998 Academic Press.

L8 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:434914 HCAPLUS
DOCUMENT NUMBER: 129:199061
TITLE: An attempt to predict the response of human glutathione S-transferase (GST) to chemical inducers using transgenic rats harboring human GST gene
AUTHOR(S): Manabe, Sunao; Ando, Yosuke; Ohashi, Yoshihiko; Igarashi, Isao; Yamoto, Takashi; Takaoka, Masaya; Tanase, Hisao; Matsunuma, Naochika; Suzuki, Takashige; Itoh, Kazumi
CORPORATE SOURCE: Laboratory Animal Science and Toxicology Laboratories, Sankyo Co., Ltd, Fukuroi, 437, Japan
SOURCE: J. Toxicol. Pathol. (1997), 10(3), 133-136
CODEN: JTPAE7; ISSN: 0914-9198
PUBLISHER: Japanese Society of Toxicologic Pathology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB To study the response of human glutathione S-transferase (GST) to chem. inducers, we have developed a line of transgenic rats which harbor 4.5 kb of **human GST alpha** 1 promoter region in their genome. This promoter is linked to the chloramphenicol acetyltransferase (CAT) reporter gene which allows detn. of the **expression** of human GST in rat tissues. Three chem. inducers, which show clearly different induction profiles, phenobarbital (PB), .beta.-naphthoflavone (BNF), and butylated hydroxyanisole (BHA), were administered to the transgenic rats. Induction of constitutive rat liver enzymes by the inducers, which was evaluated in terms of the activities of P 450, GST, and UDP-glucuronosyltransferase in the liver tissues, were in agreement with what has been reported for non-transgenic rats. **Expression** of CAT protein was detected in the liver of the transgenic rats, and an unequivocal increase in CAT protein was found in the transgenic rats treated with PB. No remarkable changes in CAT protein were obsd. in the transgenic rats treated with BNF or BHA. Moreover, immunohistochem. staining with anti-CAT antibody revealed that the **expression** and increase of CAT protein were localized in the central zone of the liver lobule. The results of this study suggest that **human GST alpha** 1 is induced by PB, in particular, in the central zone of the liver lobule. The transgenic rat is concluded to be a useful animal model for predicting metabolizing functions in humans.

L8 ANSWER 8 OF 8 LIFESCI COPYRIGHT 2002 CSA
ACCESSION NUMBER: 2000:111488 LIFESCI
TITLE: Differential Binding Affinities of PCBs, HO-PCBs, and Aroclors with **Recombinant** Human, Rainbow Trout

(Oncorhynchus mykiss), and Green Anole (Anolis carolinensis) Estrogen Receptors, Using a Semi-High Throughput Competitive Binding Assay

AUTHOR: Mathews, J.; Zacharewski, T.
CORPORATE SOURCE: Department of Biochemistry and National Food Safety and Toxicology Center, Michigan State University, East Lansing, Michigan 48824-1319, USA

SOURCE: Toxicological Sciences [Toxicol. Sci.], (20000200) vol. 53, no. 2, pp. 326-339.
ISSN: 1096-6080.
DOCUMENT TYPE: Journal
FILE SEGMENT: X
LANGUAGE: English
SUMMARY LANGUAGE: English

AB A comparative study was undertaken to assess the ability of 44 polychlorinated biphenyls (PCBs), 9 hydroxylated PCBs (HO-PCBs), and 8 aroclors at concentrations ranging from 1 nM to 10 mu M to compete with [3H]17 beta -estradiol (E2) for binding to bacterially **expressed** fusion proteins using a semi-high throughput competitive-binding assay. The fusion proteins consisted of the D, E, and F domains of human (alpha), **cloned** reptilian (Anolis carolinensis) and recloned rainbow trout (Oncorhynchus mykiss) estrogen receptors (ER) linked to the glutathione S-transferase (GST) protein. GST-hER alpha def (**human**), **GST- alpha** ERdef (reptile) and GST-rtERdef (rainbow trout) fusion proteins exhibited high affinity for E2 with dissociation constants (K sub(d)) of 0.4 plus or minus 0.1 nM, 0.7 plus or minus 0.2 nM, and 0.6 plus or minus 0.1 nM, respectively. Of the 44 PCBs examined, only PCBs 104, 184, and 188 effectively competed with [super(3)H]E2 for binding to the GST-rtERdef protein with IC sub(50) values ranging from 0.4-1.3 mu M. In contrast, these same congeners only caused a 30% displacement of [super(3)H]E2 in GST-hER alpha def and GST- alpha ERdef proteins. Several additional congeners were found to bind to the GST-rtERdef fusion protein, although the degree of interaction varied among congeners. Among the HO-PCBs, 2',3',4',5'-tetrachloro-4-biphenylol and 2,6,2',6'-tetrachloro-4-biphenylol bound to all three fusion proteins with IC sub(50) values ranging from 0.1-0.3 mu M. Dimethyl sulphoxide (DMSO) concentrations of 20% significantly increased the ability of PCBs 104, 184, and 188 to compete with [super(3)H]E2 for binding to the GST-ERdef fusion proteins, whereas at 20% DMSO, a significant reduction in saturable binding was observed. These results demonstrate that ERs from different species exhibit differential ligand preferences and relative binding affinities for PCBs, which can be dramatically affected by DMSO concentration.

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=> d his

     (FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002)

     FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
     LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002
L1             8 S GLYCOSYL(A) SULFOTRANSFERASE?
L2         42005 S GST##
L3         18003 S HUMAN AND L2
L4           938 S GST(W)ALPHA
L5           613 S L3 AND L4
L6            38 S HUMAN (A)L4
L7            11 DUP REM L6 (27 DUPLICATES REMOVED)
L8             8 S L7 AND (CLON? OR EXPRESS? OR RECOMBINANT)

=> s l4 and (gene? or cod?)
   3 FILES SEARCHED...
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L9 420 L4 AND (GENE? OR COD?)

=> s l6 and (gene? or clon? or coding)
3 FILES SEARCHED...
7 FILES SEARCHED...
L10 25 L6 AND (GENE? OR CLON? OR CODING)

=> dup rem l10
PROCESSING COMPLETED FOR L10
L11 7 DUP REM L10 (18 DUPLICATES REMOVED)

=> d 1-7 ibib ab

L11 ANSWER 1 OF 7 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001038213 MEDLINE
DOCUMENT NUMBER: 20517893 PubMed ID: 10934196
TITLE: Modulation of glutathione S-transferase alpha by hepatitis B virus and the chemopreventive drug oltipraz.
AUTHOR: Jaitovitch-Groisman I; Fotouhi-Ardakani N; Schecter R L; Woo A; Alaoui-Jamali M A; Batist G
CORPORATE SOURCE: Lady Davis Institute of the Sir Mortimer B. Davis Jewish General Hospital, The Center for Translational Research in Cancer, Department of Medicine, McGill University, Montreal, Quebec H3T 1E2, Canada.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Oct 27) 275 (43) 33395-403.
Journal code: HIV. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001124

AB Persistent infection by hepatitis B virus (HBV) and exposure to chemical carcinogens correlates with the prevalence of hepatocellular carcinoma in endemic areas. The precise nature of the interaction between these factors is not known. Glutathione S-transferases (GST) are responsible for the cellular metabolism and detoxification of a variety of cytotoxic and carcinogenic compounds by catalysis of their conjugation with glutathione. Diminished GST activity could enhance cellular sensitivity to chemical carcinogens. We have investigated GST isozyme expression in hepatocellular HepG2 cells and in an HBV-transfected subline. Total GST activity and selenium-independent glutathione peroxidase activity are significantly decreased in HBV transfected cells. On immunoblotting, HBV transfected cells demonstrate a significant decrease in the level of GST Alpha class. Cytotoxicity assays reveal that the HBV transfected cells are more sensitive to a wide range of compounds known to be detoxified by GST Alpha conjugation. Although no significant difference in protein half-life between the two cell lines was found, semi-quantitative reverse transcription-polymerase chain reaction shows a reduced amount of GST Alpha mRNA in the transfected cells. Because the HBV x protein (HBx) seems to play a role in HBV transfection, we also demonstrated that expression of the HBx **gene** into HepG2 cells decreased the amount of GST Alpha protein. Transient transfection experiments using both rat and **human GST Alpha** (rGSTA5 and hGSTA1) promoters in HepG2 cells show a decreased CAT activity upon HBx expression, supporting a transcriptional regulation of both **genes** by HBx. This effect is independent of HBx interaction with Sp1. Treatment with oltipraz, an inducer of GST Alpha, partially overcomes the effect of HBx on both promoters. Promoter deletion studies indicate that oltipraz works

through responsive elements distinct from AP1 or NF-kappaB transcription factors. Thus, HBV infection alters phase II metabolizing enzymes via different mechanisms than those modulated by treatment with oltipraz.

L11 ANSWER 2 OF 7 LIFESCI COPYRIGHT 2002 CSA
ACCESSION NUMBER: 2000:111488 LIFESCI
TITLE: Differential Binding Affinities of PCBs, HO-PCBs, and Aroclors with Recombinant Human, Rainbow Trout (Oncorhynchus mykiss), and Green Anole (Anolis carolinensis) Estrogen Receptors, Using a Semi-High Throughput Competitive Binding Assay
AUTHOR: Mathews, J.; Zacharewski, T.
CORPORATE SOURCE: Department of Biochemistry and National Food Safety and Toxicology Center, Michigan State University, East Lansing, Michigan 48824-1319, USA
SOURCE: Toxicological Sciences [Toxicol. Sci.], (20000200) vol. 53, no. 2, pp. 326-339.
ISSN: 1096-6080.
DOCUMENT TYPE: Journal
FILE SEGMENT: X
LANGUAGE: English
SUMMARY LANGUAGE: English
AB A comparative study was undertaken to assess the ability of 44 polychlorinated biphenyls (PCBs), 9 hydroxylated PCBs (HO-PCBs), and 8 aroclors at concentrations ranging from 1 nM to 10 mu M to compete with [3H]17 beta -estradiol (E2) for binding to bacterially expressed fusion proteins using a semi-high throughput competitive-binding assay. The fusion proteins consisted of the D, E, and F domains of human (alpha), **cloned** reptilian (Anolis carolinensis) and recloned rainbow trout (Oncorhynchus mykiss) estrogen receptors (ER) linked to the glutathione S-transferase (GST) protein. GST-hER alpha def (**human**), **GST- alpha** ERdef (reptile) and GST-rtERdef (rainbow trout) fusion proteins exhibited high affinity for E2 with dissociation constants (K sub(d)) of 0.4 plus or minus 0.1 nM, 0.7 plus or minus 0.2 nM, and 0.6 plus or minus 0.1 nM, respectively. Of the 44 PCBs examined, only PCBs 104, 184, and 188 effectively competed with [super(3)H]E2 for binding to the GST-rtERdef protein with IC sub(50) values ranging from 0.4-1.3 mu M. In contrast, these same congeners only caused a 30% displacement of [super(3)H]E2 in GST-hER alpha def and GST- alpha ERdef proteins. Several additional congeners were found to bind to the GST-rtERdef fusion protein, although the degree of interaction varied among congeners. Among the HO-PCBs, 2',3',4',5'-tetrachloro-4-biphenylol and 2,6,2',6'-tetrachloro-4-biphenylol bound to all three fusion proteins with IC sub(50) values ranging from 0.1-0.3 mu M. Dimethyl sulphoxide (DMSO) concentrations of 20% significantly increased the ability of PCBs 104, 184, and 188 to compete with [super(3)H]E2 for binding to the GST-ERdef fusion proteins, whereas at 20% DMSO, a significant reduction in saturable binding was observed. These results demonstrate that ERs from different species exhibit differential ligand preferences and relative binding affinities for PCBs, which can be dramatically affected by DMSO concentration.

L11 ANSWER 3 OF 7 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 2
ACCESSION NUMBER: 1998339046 EMBASE
TITLE: A 47-amino-acid fragment of SV40 T antigen represses transcription from **human GST**. **alpha**. promoters.
AUTHOR: Sompayrac L.; Jane S.; Lorper M.; Sies H.
CORPORATE SOURCE: L. Sompayrac, Molec. Cellular,/Devtl. Biol. Dept., University of Colorado, Boulder, CO 80309, United States. laurens@Alum.mit.edu
SOURCE: Virology, (30 Sep 1998) 249/2 (275-285).

Refs: 32
ISSN: 0042-6822 CODEN: VIRLAX
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English
AB SV40 T antigen downregulates the expression of an important detoxitication enzyme, glutathione S-transferase .alpha. (GST.alpha.). We show here that the target of this repression is a 14-bp element common to the human GSTA1 and GSTA2 promoters. This element, which we have named TAGR, is also critical for high-level, constitutive expression from these promoters. The TAGR element does not appear to contain a binding site for any transcription factor known to be present in fibroblasts, although the TAGR element does resemble the binding site for the Ikaros transcription factor found in hematopoietic cells. We also have identified a 47-amino-acid fragment of T antigen that includes amino acids 83-100 and 119-147, which is sufficient to repress transcription from the GST.alpha. promoter in transient transcription assays. Thus, GST.alpha. repression does not require binding of T antigen to pRb, p300, or p53, since the domains of T antigen required for binding these cellular proteins are missing from this T antigen fragment. We show, however, that this fragment does bind to three cellular proteins with approximate molecular weights of 54, 59, and 94 kDa.

L11 ANSWER 4 OF 7 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 1998:834534 SCISEARCH
THE GENUINE ARTICLE: 132NF
TITLE: Identification of two activating elements in the proximal promoter region of the human glutathione transferase-A1 and -A2 **genes**
AUTHOR: Lorper M; Clairmont A; Carlberg C; Sies H (Reprint)
CORPORATE SOURCE: UNIV DUSSELDORF, INST PHYSIOL CHEM 1, POSTFACH 10 10 07, D-40001 DUSSELDORF, GERMANY (Reprint); UNIV DUSSELDORF, INST PHYSIOL CHEM 1, D-40001 DUSSELDORF, GERMANY; UNIV DUSSELDORF, BIOL MED FORSCHUNGSZENTRUM, D-40001 DUSSELDORF, GERMANY
COUNTRY OF AUTHOR: GERMANY
SOURCE: ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS, (1 NOV 1998) Vol. 359, No. 1, pp. 122-127.
Publisher: ACADEMIC PRESS INC JNL-COMP SUBSCRIPTIONS, 525 B ST, STE 1900, SAN DIEGO, CA 92101-4495.
ISSN: 0003-9861.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 21
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Promoter regions derived from the human glutathione S-transferase (GST) alpha **gene** cluster located on chromosome 6p12 were studied: the identical proximal promoters of the GST A1 and GST A2 **genes** and a proximal promoter of a pseudogene of this class. The sequence of the pseudogene promoter differs in four single nucleotides at positions -86, -66, -41, and -13, and a noncritical TTT insertion at positions -71 to -69 from the GST A1/A2 promoter. Here, it was shown that the GST A1/A2 proximal promoters differed by a factor of 3.4 in their activity from the proximal pseudogene promoter. Therefore, the functional significance of single base exchanges was examined by introducing individual point mutations at the four positions within the proximal GST A1/A2 promoter. In functional tests in transiently transfected human hepatoblastoma HepG2 cells the base exchange at position -13 showed no effect, whereas mutations at position -41 or -86 diminished the promoter activity to a

level comparable to the pseudogene promoter. Promoter fragments of both **genes** spanning over these four sites were analyzed in a heterologous promoter context for their functionality in HepG2 cells. Moreover, gel shift experiments showed specific binding of nuclear proteins to these promoter fragments. The results show that in the proximal GST A1/A2 promoter the sites at position -41 or -86 are essential for the binding of activating transcription factor complexes. (C) 1998 Academic Press.

L11 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:434914 HCAPLUS
DOCUMENT NUMBER: 129:199061
TITLE: An attempt to predict the response of human glutathione S-transferase (GST) to chemical inducers using transgenic rats harboring human GST **gene**
AUTHOR(S): Manabe, Sunao; Ando, Yosuke; Ohashi, Yoshihiko; Igarashi, Isao; Yamoto, Takashi; Takaoka, Masaya; Tanase, Hisao; Matsunuma, Naochika; Suzuki, Takashige; Itoh, Kazumi
CORPORATE SOURCE: Laboratory Animal Science and Toxicology Laboratories, Sankyo Co., Ltd, Fukuroi, 437, Japan
SOURCE: J. Toxicol. Pathol. (1997), 10(3), 133-136
CODEN: JTPAE7; ISSN: 0914-9198
PUBLISHER: Japanese Society of Toxicologic Pathology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB To study the response of human glutathione S-transferase (GST) to chem. inducers, we have developed a line of transgenic rats which harbor 4.5 kb of **human GST alpha** 1 promoter region in their genome. This promoter is linked to the chloramphenicol acetyltransferase (CAT) reporter **gene** which allows detn. of the expression of human GST in rat tissues. Three chem. inducers, which show clearly different induction profiles, phenobarbital (PB), .beta.-naphthoflavone (BNF), and butylated hydroxyanisole (BHA), were administered to the transgenic rats. Induction of constitutive rat liver enzymes by the inducers, which was evaluated in terms of the activities of P 450, GST, and UDP-glucuronosyltransferase in the liver tissues, were in agreement with what has been reported for non-transgenic rats. Expression of CAT protein was detected in the liver of the transgenic rats, and an unequivocal increase in CAT protein was found in the transgenic rats treated with PB. No remarkable changes in CAT protein were obsd. in the transgenic rats treated with BNF or BHA. Moreover, immunohistochem. staining with anti-CAT antibody revealed that the expression and increase of CAT protein were localized in the central zone of the liver lobule. The results of this study suggest that **human GST alpha** 1 is induced by PB, in particular, in the central zone of the liver lobule. The transgenic rat is concluded to be a useful animal model for predicting metabolizing functions in humans.

L11 ANSWER 6 OF 7 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.DUPLICATE 3
ACCESSION NUMBER: 95114265 EMBASE
DOCUMENT NUMBER: 1995114265
TITLE: Turnover of glutathione S-transferase .alpha. mRNAs is accelerated by 12-O-tetradecanoyl phorbol-13-acetate in human hepatoma and colon carcinoma cell lines.
AUTHOR: Eickelmann P.; Morel F.; Schulz W.A.; Sies H.
CORPORATE SOURCE: Inst. fur Physiologische Chemie I, Heinrich-Heine-Universitat, Postfach 101007,D-40001 Dusseldorf, Germany
SOURCE: European Journal of Biochemistry, (1995) 229/1 (21-26).
ISSN: 0014-2956 CODEN: EJBCAI
COUNTRY: Germany
DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 016 Cancer
029 Clinical Biochemistry
048 Gastroenterology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The phorbol ester, 12-O-tetradecanoyl phorbol-13-acetate (TPA), known to induce murine glutathione S-transferase (GST) Ya, was examined for its effect on the expression of **human GST .alpha** .. Unexpectedly, 24-h treatment of the human hepatoma cell line HepG2 with 100 nmol/l TPA caused a decrease of the GST .alpha. mRNA level to below 5% of controls, i.e. opposite to the known response in the mouse. The level of mRNA for GST Mu was also decreased, but the mRNAs of c-jun and jun-B were elevated after 2 h. The decrease of GST .alpha. mRNAs was inhibited by staurosporine, suggesting an involvement of protein kinase C. Inhibition of transcription and translation by actinomycin D and cycloheximide also partially inhibited the effect of TPA on the expression of GST .alpha.. In the presence of actinomycin D, GST .alpha. mRNA halflife was 14.5 h, compared to 3.5 h in the presence of TPA. The calcium ionophore A23187 caused a loss of GST .alpha. mRNAs to levels almost as low as those obtained with TPA. The effects of TPA and the calcium ionophore were also observed in CaCo2 colon carcinoma cells. As a consequence of the decrease of mRNA levels, GST .alpha. protein levels and total GST enzyme activity were also diminished. Also, the morphology of the cells was changed after 3 h exposure to PTA. These data suggest that **human GST .alpha.** expression can be regulated at the level of mRNA stability by a pathway involving protein kinase C.

L11 ANSWER 7 OF 7 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 94291255 MEDLINE
DOCUMENT NUMBER: 94291255 PubMed ID: 8020149
TITLE: Protection by transfected glutathione S-transferase isozymes against carcinogen-induced alkylation of cellular macromolecules in human MCF-7 cells.
AUTHOR: Fields W R; Li Y; Townsend A J
CORPORATE SOURCE: Biochemistry Department, Bowman Gray School of Medicine, Wake Forest University Comprehensive Cancer Center, Winston-Salem, NC 27157.
CONTRACT NUMBER: 5F31GM14822-02 (NIGMS)
R-55-ES-06006-01 (NIEHS)
SOURCE: CARCINOGENESIS, (1994 Jun) 15 (6) 1155-60.
Journal code: C9T; 8008055. ISSN: 0143-3334.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199408
ENTRY DATE: Entered STN: 19940815
Last Updated on STN: 19980206
Entered Medline: 19940803

AB Increased expression of glutathione S-transferase (GST) isozymes has been correlated with development of resistance both to cytotoxic anticancer agents and to genotoxic carcinogens. While most anticancer agents are poor GST substrates, the model alkylating carcinogen 4-nitroquinoline-1-oxide (NQO) is a good substrate for human pi class GST (hGSTP1-1) and murine GST mu-1 (mGSTM1-1), but not **human GST alpha**-2 (hGSTA2-2). We investigated whether expression of these GST isozymes in stably transfected **clonal** cell lines could protect against the genotoxic and cytotoxic effects of NQO. Compared to parental MCF-7 or pSV2neotransfected control cell lines, covalent labeling of total cellular macromolecules by [3H]NQO (0.1-1.0 mM) was reduced by 70% and 92% in hGSTP1-1- and mGSTM1-1-transfected cell lines, respectively, but was not

affected in the hGSTA2-2 expressing line. The observed protection was closely correlated with the relative specific activity of each cell line for conjugation of NQO by the transfected GST isozymes and this protection was reversible by pretreatment of cells with the GST inhibitor ethacrynic acid. Similar results were obtained when covalent labeling of total cellular nucleic acid or DNA was measured. However, **clonogenic** survival assays indicated that the sensitivity of these cell lines to the cytotoxic effects of NQO was similar for the control and GST-transfected MCF-7 cell lines. Thus, while expression of hGSTP1-1 and mGSTM1-1 (but not hGSTA2-2) was highly protective against alkylation of cellular macromolecules by NQO, this protection was not effective against cytotoxicity induced by NQO as measured by **clonogenic** assay. These results indicate that expression of GST isozymes can protect differentially against the acute genotoxic and potentially mutagenic effects, as compared to the cytotoxic effects, of electrophiles that are detoxified by glutathione conjugation.

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=> d his

     (FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002)

     FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
     LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002
L1             8 S GLYCOSYL(A) SULFOTRANSFERASE?
L2         42005 S GST##
L3         18003 S HUMAN AND L2
L4           938 S GST(W)ALPHA
L5           613 S L3 AND L4
L6            38 S HUMAN (A)L4
L7            11 DUP REM L6 (27 DUPLICATES REMOVED)
L8             8 S L7 AND (CLON? OR EXPRESS? OR RECOMBINANT)
L9           420 S L4 AND (GENE? OR COD?)
L10           25 S L6 AND (GENE? OR CLON? OR CODING)
L11            7 DUP REM L10 (18 DUPLICATES REMOVED)

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   3 FILES SEARCHED...
L12            0 L11 AND (CELL (A) ADHES?)

=> e rosen s/au
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E2             2     ROSEN RUDOLPH A/AU
E3          2211 --> ROSEN S/AU
E4            17     ROSEN S A/AU
E5             4     ROSEN S B/AU
E6           141     ROSEN S C/AU
E7           703     ROSEN S D/AU
E8             8     ROSEN S D */AU
E9             1     ROSEN S D C/AU
E10           53     ROSEN S E/AU
E11           11     ROSEN S F/AU
E12          141     ROSEN S G/AU

=> s e7-e8
L13          711 ("ROSEN S D"/AU OR "ROSEN S D *"/AU)

=> s l13 and l6
L14            0 L13 AND L6

=> s l13 and l3
L15           12 L13 AND L3
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=> dup rem l15
PROCESSING COMPLETED FOR L15
L16 5 DUP REM L15 (7 DUPLICATES REMOVED)

=> d 1-5 ibib ab

L16 ANSWER 1 OF 5 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI
ACCESSION NUMBER: 2001-06117 BIOTECHDS
TITLE: New glycosyl-sulfotransferases (**GST**)-4-alpha, **GST**-4-beta and **GST**-6 for diagnostic and therapeutic agent screening applications; vector-mediated gene transfer, expression in host cell, monoclonal antibody and transgenic animal for selectin binding-inhibitor, drug screening and disease therapy, diagnosis and gene therapy
AUTHOR: **Rosen S D**; Lee J K; Hemmerich S
PATENT ASSIGNEE: Univ.California
LOCATION: Oakland, CA, USA.
PATENT INFO: WO 2001006015 25 Jan 2001
APPLICATION INFO: WO 2000-US19741 19 Jul 2000
PRIORITY INFO: US 2000-593828 13 Jul 2000; US 1999-144694 20 Jul 1999
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2001-138471 [14]
AB A glycosyl-sulfotransferase (**GST**) (I) selected from the group **GST**-4-alpha, **GST**-4-beta and **GST**-6, is claimed. Also claimed are: a fragment of (I); a DNA (II) encoding (I); a DNA or its mimetic that hybridizes to (II) or its complementary sequence; an expression cassette (III) containing a transcriptional initiation region functional in an expression host and (II) under the transcriptional regulation of the transcriptional initiation region and a transcriptional termination region; a host cell (IV) containing (III); the cellular progeny of (IV); a method of producing (I); a monoclonal antibody that specifically binds to (I); and a non-**human** transgenic animal model for gene function, where the animal contains an introduced alteration in a gene encoding (I). (I) is useful for inhibiting a binding event between a selectin and a selectin ligand, which involves contacting the selectin with a non-sulfated selectin ligand. (II) encoding (I) is also useful in gene therapy to treat disorders such as acute or chronic inflammation and transplant tissue rejection and also for disease diagnosis. (44pp)

L16 ANSWER 2 OF 5 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001205848 MEDLINE
DOCUMENT NUMBER: 21096027 PubMed ID: 11181564
TITLE: Chromosomal localization and genomic organization for the galactose/ N-acetylgalactosamine/N-acetylglucosamine 6-O-sulfotransferase gene family.
AUTHOR: Hemmerich S; Lee J K; Bhakta S; Bistrup A; Ruddle N R; **Rosen S D**
CORPORATE SOURCE: Department of Respiratory Diseases, Roche Bioscience, Palo Alto, CA 94304, USA.
CONTRACT NUMBER: RO1GM5741 (NIGMS)
SOURCE: GLYCOBIOLOGY, (2001 Jan) 11 (1) 75-87.
Journal code: BEL; 9104124. ISSN: 0959-6658.
PUB. COUNTRY: England: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF176838; GENBANK-AF280086; GENBANK-AF280087; GENBANK-AF280088; GENBANK-AF280089; GENBANK-AI824100

ENTRY MONTH: 200106
ENTRY DATE: Entered STN: 20010611
Last Updated on STN: 20010611
Entered Medline: 20010607

AB The galactose/N-acetylgalactosamine/N-acetylglucosamine 6-O-sulfotransferases (**GSTs**) are a family of Golgi-resident enzymes that transfer sulfate from 3'phosphoadenosine 5'phospho-sulfate to the 6-hydroxyl group of galactose, N-acetylgalactosamine, or N-acetylglucosamine in nascent glycoproteins. These sulfation modifications are functionally important in settings as diverse as cartilage structure and lymphocyte homing. To date six members of this gene family have been described in **human** and in mouse. We have determined the chromosomal localization of these genes as well as their genomic organization. While the broadly expressed enzymes implicated in proteoglycan biosynthesis are located on different chromosomes, the highly tissue specific enzymes **GST**-3 and 4 are encoded by genes located both in band q23.1--23.2 on chromosome 16. In the mouse, both genes reside in the syntenic region 8E1 on chromosome 8. This cross-species conserved clustering is suggestive of related functional roles for these genes. The **human GST4** locus actually contains two highly similar open reading frames (ORF) that are 50 kb apart and encode two highly similar enzyme isoforms termed **GST**-4 alpha and **GST**-4 beta. All genes except **GST0** (chondroitin 6-O-sulfotransferase) contain intron-less ORFs. With one exception these are fused directly to sequences encoding the 3' untranslated regions (UTR) of the respective mature mRNAs. The 5' UTRs of these mRNAs are usually encoded by a number of short exons 5' of the respective ORF. 5'UTRs of the same enzyme expressed in different cell types are sometimes derived from different exons located upstream of the ORF. The genomic organization of the **GSTs** resembles that of certain glycosyltransferase gene families.

L16 ANSWER 3 OF 5 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2001098512 MEDLINE
DOCUMENT NUMBER: 20568280 PubMed ID: 10956661
TITLE: Sulfation of N-acetylglucosamine by chondroitin 6-sulfotransferase 2 (**GST**-5).
AUTHOR: Bhakta S; Bartes A; Bowman K G; Kao W M; Polsky I; Lee J K; Cook B N; Bruehl R E; **Rosen S D**; Bertozzi C R; Hemmerich S
CORPORATE SOURCE: Department of Respiratory Diseases, Roche Bioscience, Palo Alto, California 94304, USA.
CONTRACT NUMBER: R37GM23547 (NIGMS)
RO1GM5741 (NIGMS)
RO1GM59907-01 (NIGMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Dec 22) 275 (51) 40226-34.
Journal code: HIV. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF280089
ENTRY MONTH: 200102
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010201

AB Based on sequence homology with a previously cloned **human** GlcNAc 6-O-sulfotransferase, we have identified an open reading frame (ORF) encoding a novel member of the Gal/GalNAc/GlcNAc 6-O-sulfotransferase (**GST**) family termed **GST**-5 on the **human** X chromosome (band Xp11). **GST**-5 has recently been characterized as a novel GalNAc 6-O-sulfotransferase termed chondroitin

6-sulfotransferase-2 (Kitagawa, H., Fujita, M., Itio, N., and Sugahara K. (2000) J. Biol. Chem. 275, 21075-21080). We have coexpressed a **human GST**-5 cDNA with a GlyCAM-1/IgG fusion protein in COS-7 cells and observed four-fold enhanced [(35)S]sulfate incorporation into this mucin acceptor. All mucin-associated [(35)S]sulfate was incorporated as GlcNAc-6-sulfate or Galbeta1-->4GlcNAc-6-sulfate. **GST**-5 was also expressed in soluble epitope-tagged form and found to catalyze 6-O-sulfation of GlcNAc residues in synthetic acceptor structures. In particular, **GST**-5 was found to catalyze 6-O-sulfation of beta-benzyl GlcNAc but not alpha- or beta-benzyl GalNAc. In the mouse genome we have found a homologous ORF that predicts a novel murine GlcNAc 6-O-sulfotransferase with 88% identity to the **human** enzyme. This gene was mapped to mouse chromosome X at band XA3.1-3.2. **GST**-5 is the newest member of an emerging family of carbohydrate 6-O-sulfotransferases that includes chondroitin 6-sulfotransferase (**GST**-0), keratan-sulfate galactose 6-O-sulfotransferase (**GST**-1), the ubiquitously expressed GlcNAc 6-O-sulfotransferase (**GST**-2), high endothelial cell GlcNAc 6-O-sulfotransferase (**GST**-3), and intestinal GlcNAc 6-O-sulfotransferase (**GST** -4).

L16 ANSWER 4 OF 5 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI
ACCESSION NUMBER: 2000-00104 BIOTECHDS
TITLE: **Human** and mouse glycosyl-sulfotransferase-3 and related polynucleotides;
expression in mammalian host cell and antibody, used for disease diagnosis and gene therapy
AUTHOR: Bistrup A; **Rosen S D**; Tangemann K; Hemmerich S
PATENT ASSIGNEE: Univ.California; Syntex
LOCATION: Oakland, CA, USA; Palo Alto, CA, USA.
PATENT INFO: WO 9949018 30 Sep 1999
APPLICATION INFO: WO 1999-US4316 26 Feb 1999
PRIORITY INFO: US 1998-190911 12 Nov 1998; US 1998-45284 20 Mar 1998
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1999-580442 [49]
AB Glycosyl-sulfotransferase-3 (**GST**-3, 386 or 388 amino acids) present in other than its natural environment, is new. Also claimed are: a nucleic acid (2,032 or 1,893 bp) which encodes **GST**-3; an expression cassette under the control of initiation sequences and termination sequences; a host cell; a method of producing **GST** -3; a monoclonal antibody; a method for inhibiting the binding of a selectin and a selectin ligand; a method of inhibiting a selectin mediated binding event in a mammalian host; a method of modulating a symptom of a disease condition associated with a selectin mediated binding event; a method of diagnosing a disease state related to the abnormal levels of a sulfotransferase chosen from **GST**-3 and KSGal6ST; a method of determining whether an agent is capable of modulating the activity of a sulfotransferase chosen from **GST**-3 and KSGal6ST; and a non-**human** transgenic animal model for **gst**-3 gene function. The nucleic acid sequences, DNA probes and DNA primers derived from these, proteins and antibodies are useful in detecting homologs. The products are useful in the diagnosis of diseases associated with selectin binding interactions. (59pp)

L16 ANSWER 5 OF 5 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 1999423499 MEDLINE
DOCUMENT NUMBER: 99423499 PubMed ID: 10491328
TITLE: Cloning and characterization of a mammalian N-acetylglucosamine-6-sulfotransferase that is highly restricted to intestinal tissue.
AUTHOR: Lee J K; Bhakta S; **Rosen S D**; Hemmerich S

CORPORATE SOURCE: Department of Anatomy and Program in Immunology, University of California, San Francisco, California, 94143, USA.
CONTRACT NUMBER: R37GM23547 (NIGMS)
R01GM5741 (NIGMS)
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1999 Sep 24) 263 (2) 543-9.
Journal code: 9Y8; 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF176838; GENBANK-AF176839; GENBANK-AF176840; GENBANK-AF176841
ENTRY MONTH: 199910
ENTRY DATE: Entered STN: 19991101
Last Updated on STN: 19991101
Entered Medline: 19991021

AB Using the sequences of a galactose 6-O-sulfotransferase and an N-acetylglucosamine 6-O-sulfotransferase as probes in an EST approach, we have identified a highly related cDNA in **human** and an apparent orthologue in mouse. The cDNAs predict type II transmembrane proteins that constitute new members of the Gal/GalNAc/GlcNAc 6-O-sulfotransferase (**GST**) family. Members of this family have previously been implicated in the sulfation of GAG chains within proteoglycans and the sulfation of O-linked chains within sialomucin ligands for l-selectin. Expression of the newly identified cDNA in COS cells led to the addition of sulfate to C-6 of GlcNAc in an acceptor glycoprotein. The tissue expression of transcripts corresponding to the cDNA was highly restricted to the small intestine and colon in **humans**. Based on these characteristics, the novel sulfotransferase is designated I-GlcNAc6ST for intestinal GlcNAc 6-O-sulfotransferase.

=> d his

(FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002

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L1            8 S GLYCOSYL(A) SULFOTRANSFERASE?
L2        42005 S GST##
L3        18003 S HUMAN AND L2
L4          938 S GST(W)ALPHA
L5          613 S L3 AND L4
L6           38 S HUMAN (A)L4
L7           11 DUP REM L6 (27 DUPLICATES REMOVED)
L8            8 S L7 AND (CLON? OR EXPRESS? OR RECOMBINANT)
L9          420 S L4 AND (GENE? OR COD?)
L10          25 S L6 AND (GENE? OR CLON? OR CODING)
L11           7 DUP REM L10 (18 DUPLICATES REMOVED)
L12           0 S L11 AND (CELL (A)ADHES?)
                E ROSEN S/AU
L13         711 S E7-E8
L14           0 S L13 AND L6
L15          12 S L13 AND L3
L16           5 DUP REM L15 (7 DUPLICATES REMOVED)
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E8            1      LEE J K L/AU
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L17        3091 "LEE J K"/AU

=> d his

     (FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002)

     FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
     LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002
L1             8 S GLYCOSYL(A) SULFOTRANSFERASE?
L2         42005 S GST##
L3         18003 S HUMAN AND L2
L4           938 S GST(W)ALPHA
L5           613 S L3 AND L4
L6            38 S HUMAN (A)L4
L7            11 DUP REM L6 (27 DUPLICATES REMOVED)
L8             8 S L7 AND (CLON? OR EXPRESS? OR RECOMBINANT)
L9           420 S L4 AND (GENE? OR COD?)
L10           25 S L6 AND (GENE? OR CLON? OR CODING)
L11            7 DUP REM L10 (18 DUPLICATES REMOVED)
L12            0 S L11 AND (CELL (A)ADHES?)
                 E ROSEN S/AU
L13          711 S E7-E8
L14            0 S L13 AND L6
L15           12 S L13 AND L3
L16            5 DUP REM L15 (7 DUPLICATES REMOVED)
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                 E LEE J K/AU
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L19           17 L17 AND L3

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L20 6 DUP REM L19 (11 DUPLICATES REMOVED)

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L20 ANSWER 1 OF 6 BIOTECHDS COPYRIGHT 2002 DERWENT INFO AND ISI
ACCESSION NUMBER: 2001-06117 BIOTECHDS
TITLE: New glycosyl-sulfotransferases (**GST**)-4-alpha, **GST**-4-beta and **GST**-6 for diagnostic and therapeutic agent screening applications; vector-mediated gene transfer, expression in host cell, monoclonal antibody and transgenic animal for selectin binding-inhibitor, drug screening and disease therapy, diagnosis and gene therapy
AUTHOR: Rosen S D; **Lee J K**; Hemmerich S
PATENT ASSIGNEE: Univ.California
LOCATION: Oakland, CA, USA.
PATENT INFO: WO 2001006015 25 Jan 2001
APPLICATION INFO: WO 2000-US19741 19 Jul 2000
PRIORITY INFO: US 2000-593828 13 Jul 2000; US 1999-144694 20 Jul 1999
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2001-138471 [14]
AB A glycosyl-sulfotransferase (**GST**) (I) selected from the group **GST**-4-alpha, **GST**-4-beta and **GST**-6, is claimed. Also claimed are: a fragment of (I); a DNA (II) encoding (I); a DNA or its mimetic that hybridizes to (II) or its complementary sequence; an expression cassette (III) containing a transcriptional initiation region functional in an expression host and (II) under the transcriptional regulation of the transcriptional initiation region and a transcriptional termination region; a host cell (IV) containing (III); the cellular progeny of (IV); a method of producing (I); a monoclonal antibody that specifically binds to (I); and a non-**human** transgenic animal model for gene function, where the animal contains an introduced alteration in a gene encoding (I). (I) is useful for inhibiting a binding event between a selectin and a selectin ligand, which involves contacting the selectin with a non-sulfated selectin ligand. (II) encoding (I) is also useful in gene therapy to treat disorders such as acute or chronic inflammation and transplant tissue rejection and also for disease diagnosis. (44pp)

L20 ANSWER 2 OF 6 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001205848 MEDLINE
DOCUMENT NUMBER: 21096027 PubMed ID: 11181564
TITLE: Chromosomal localization and genomic organization for the galactose/ N-acetylgalactosamine/N-acetylglucosamine 6-O-sulfotransferase gene family.
AUTHOR: Hemmerich S; **Lee J K**; Bhakta S; Bistrup A; Ruddle N R; Rosen S D
CORPORATE SOURCE: Department of Respiratory Diseases, Roche Bioscience, Palo Alto, CA 94304, USA.
CONTRACT NUMBER: RO1GM5741 (NIGMS)
SOURCE: GLYCOBIOLOGY, (2001 Jan) 11 (1) 75-87.
Journal code: BEL; 9104124. ISSN: 0959-6658.
PUB. COUNTRY: England: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF176838; GENBANK-AF280086; GENBANK-AF280087; GENBANK-AF280088; GENBANK-AF280089; GENBANK-AI824100
ENTRY MONTH: 200106
ENTRY DATE: Entered STN: 20010611
Last Updated on STN: 20010611

Entered Medline: 20010607

AB The galactose/N-acetylgalactosamine/N-acetylglucosamine 6-O-sulfotransferases (**GSTs**) are a family of Golgi-resident enzymes that transfer sulfate from 3'phosphoadenosine 5'phospho-sulfate to the 6-hydroxyl group of galactose, N-acetylgalactosamine, or N-acetylglucosamine in nascent glycoproteins. These sulfation modifications are functionally important in settings as diverse as cartilage structure and lymphocyte homing. To date six members of this gene family have been described in **human** and in mouse. We have determined the chromosomal localization of these genes as well as their genomic organization. While the broadly expressed enzymes implicated in proteoglycan biosynthesis are located on different chromosomes, the highly tissue specific enzymes **GST**-3 and 4 are encoded by genes located both in band q23.1--23.2 on chromosome 16. In the mouse, both genes reside in the syntenic region 8E1 on chromosome 8. This cross-species conserved clustering is suggestive of related functional roles for these genes. The **human GST4** locus actually contains two highly similar open reading frames (ORF) that are 50 kb apart and encode two highly similar enzyme isoforms termed **GST**-4 alpha and **GST**-4 beta. All genes except **GST0** (chondroitin 6-O-sulfotransferase) contain intron-less ORFs. With one exception these are fused directly to sequences encoding the 3' untranslated regions (UTR) of the respective mature mRNAs. The 5' UTRs of these mRNAs are usually encoded by a number of short exons 5' of the respective ORF. 5'UTRs of the same enzyme expressed in different cell types are sometimes derived from different exons located upstream of the ORF. The genomic organization of the **GSTs** resembles that of certain glycosyltransferase gene families.

L20 ANSWER 3 OF 6 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2001098512 MEDLINE
DOCUMENT NUMBER: 20568280 PubMed ID: 10956661
TITLE: Sulfation of N-acetylglucosamine by chondroitin 6-sulfotransferase 2 (**GST**-5).
AUTHOR: Bhakta S; Bartes A; Bowman K G; Kao W M; Polsky I; **Lee J K**; Cook B N; Bruehl R E; Rosen S D; Bertozzi C R; Hemmerich S
CORPORATE SOURCE: Department of Respiratory Diseases, Roche Bioscience, Palo Alto, California 94304, USA.
CONTRACT NUMBER: R37GM23547 (NIGMS)
RO1GM5741 (NIGMS)
RO1GM59907-01 (NIGMS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Dec 22) 275 (51) 40226-34.
Journal code: HIV. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF280089
ENTRY MONTH: 200102
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010201

AB Based on sequence homology with a previously cloned **human** GlcNAc 6-O-sulfotransferase, we have identified an open reading frame (ORF) encoding a novel member of the Gal/GalNAc/GlcNAc 6-O-sulfotransferase (**GST**) family termed **GST**-5 on the **human** X chromosome (band Xp11). **GST**-5 has recently been characterized as a novel GalNAc 6-O-sulfotransferase termed chondroitin 6-sulfotransferase-2 (Kitagawa, H., Fujita, M., Itio, N., and Sugahara K. (2000) J. Biol. Chem. 275, 21075-21080). We have coexpressed a **human GST**-5 cDNA with a GlyCAM-1/IgG fusion protein in

COS-7 cells and observed four-fold enhanced [(35)S]sulfate incorporation into this mucin acceptor. All mucin-associated [(35)S]sulfate was incorporated as GlcNAc-6-sulfate or Galbeta1-->4GlcNAc-6-sulfate. **GST**-5 was also expressed in soluble epitope-tagged form and found to catalyze 6-O-sulfation of GlcNAc residues in synthetic acceptor structures. In particular, **GST**-5 was found to catalyze 6-O-sulfation of beta-benzyl GlcNAc but not alpha- or beta-benzyl GalNAc. In the mouse genome we have found a homologous ORF that predicts a novel murine GlcNAc 6-O-sulfotransferase with 88% identity to the **human** enzyme. This gene was mapped to mouse chromosome X at band XA3.1-3.2. **GST**-5 is the newest member of an emerging family of carbohydrate 6-O-sulfotransferases that includes chondroitin 6-sulfotransferase (**GST**-0), keratan-sulfate galactose 6-O-sulfotransferase (**GST**-1), the ubiquitously expressed GlcNAc 6-O-sulfotransferase (**GST**-2), high endothelial cell GlcNAc 6-O-sulfotransferase (**GST**-3), and intestinal GlcNAc 6-O-sulfotransferase (**GST** -4).

L20 ANSWER 4 OF 6 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2000487950 MEDLINE
DOCUMENT NUMBER: 20491927 PubMed ID: 11035075
TITLE: Distinct **human** T cell repertoires mediate immediate and delayed-type hypersensitivity to the Trichophyton antigen, Tri r 2.
AUTHOR: Woodfolk J A; Sung S S; Benjamin D C; **Lee J K**; Platts-Mills T A
CORPORATE SOURCE: Asthma and Allergic Diseases Center, Department of Internal Medicine, University of Virginia, Charlottesville, VA 22908, USA.. jaw4m@virginia.edu
CONTRACT NUMBER: AI30840 (NIAID)
NIEHS/NIAID-34607 (NCEH)
SOURCE: JOURNAL OF IMMUNOLOGY, (2000 Oct 15) 165 (8) 4379-87.
Journal code: IFB. ISSN: 0022-1767.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001114

AB The 29-kDa subtilase homologue, Tri r 2, derived from the dermatophyte fungus Trichophyton rubrum, exhibits unique immunologic characteristics in its ability to elicit immediate (IH) and delayed-type (DTH) hypersensitivity skin tests in different individuals. Thus, Tri r 2 provides a model for comparing the T cell repertoire in subjects with distinct immune responses to a single Ag. Recombinant Tri r 2 produced as a **GST** fusion protein in Escherichia coli stimulated strong in vitro lymphoproliferative responses in 10 IH and 10 DTH responders. Patterns of T cell epitope recognition were compared between skin test groups using 28 overlapping peptides (each in 12 replicate wells) derived from Tri r 2 to stimulate T lymphocyte proliferation in vitro. Peptide 5 (P5; aa 41-60) induced the strongest response in DTH subjects and showed the largest difference between DTH and IH responders in proliferation (mean standardized index, 2.22 and 0.82, respectively; p = 0.0047) and number of positive wells (81 vs 12). Responses to P5 were associated with diverse HLA haplotypes. These results showed that P5 contains an immunodominant epitope specifically associated with DTH and that this peptide is recognized in a permissive manner. Cross-validated linear discriminant analysis using T cell proliferative responses to two regions of Tri r 2 (aa 51-90 and 231-270) gave a 95% predictive accuracy for classification of subjects into IH or DTH groups. We conclude that

different immune responses to Trichophyton are mediated by distinct T cell repertoires between individuals with IH and DTH reactions to Tri r 2.

L20 ANSWER 5 OF 6 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 2001323755 MEDLINE
DOCUMENT NUMBER: 20547137 PubMed ID: 11097350
TITLE: Influence of glutathione S-transferase M1 and T1 genotypes on larynx cancer risk among Korean smokers.
AUTHOR: Hong Y J; **Lee J K**; Lee G H; Hong S I
CORPORATE SOURCE: Department of Clinical Pathology, Korea Cancer Center Hospital, Seoul.. clinchem@kcchsun.kcch.re.kr
SOURCE: CLINICAL CHEMISTRY AND LABORATORY MEDICINE, (2000 Sep) 38 (9) 917-9.
Journal code: CZ8; 9806306. ISSN: 1434-6621.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200106
ENTRY DATE: Entered STN: 20010611
Last Updated on STN: 20010611
Entered Medline: 20010607

AB Glutathione S-transferase (**GST**) isoenzymes are involved in the detoxification of major carcinogens present in tobacco smoke. It is thus conceivable that deficiency in **GST** activity due to homozygous deletions of the **GSTM1** and **GSTT1** genes (the null genotypes) may modulate susceptibility to smoking-induced cancers. The influence of the **GSTM1** and **GSTT1** null genotypes on larynx cancer risk among the Korean population were evaluated using peripheral blood DNA from 82 larynx cancer patients and 63 healthy controls, all of whom were male current smokers. Increased larynx cancer risk was related to the **GSTM1** null genotype (odds ratio (OR)=3.53, 95% confidence interval (CI)=1.27-9.83). The OR associated with the **GSTT1** null genotype was also increased, but did not reach statistical significance (OR=1.83, 95% CI=0.70-4.79). Individuals lacking both the **GSTM1** and **GSTT1** genes were at a significantly higher risk for larynx cancer than individuals with both genes present (OR=4.04, 95% CI=1.33-12.30). These data confirm that the **GSTM1** null genotype is an important risk modifier for larynx cancer among Korean smokers and combined **GSTM1** and **GSTT1** null genotypes could be a useful predictor of genetic susceptibility to larynx cancer.

L20 ANSWER 6 OF 6 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 1999423499 MEDLINE
DOCUMENT NUMBER: 99423499 PubMed ID: 10491328
TITLE: Cloning and characterization of a mammalian N-acetylglucosamine-6-sulfotransferase that is highly restricted to intestinal tissue.
AUTHOR: **Lee J K**; Bhakta S; Rosen S D; Hemmerich S
CORPORATE SOURCE: Department of Anatomy and Program in Immunology, University of California, San Francisco, California, 94143, USA.
CONTRACT NUMBER: R37GM23547 (NIGMS)
RO1GM5741 (NIGMS)
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1999 Sep 24) 263 (2) 543-9.
Journal code: 9Y8; 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF176838; GENBANK-AF176839; GENBANK-AF176840; GENBANK-AF176841

ENTRY MONTH: 199910
ENTRY DATE: Entered STN: 19991101
Last Updated on STN: 19991101
Entered Medline: 19991021

AB Using the sequences of a galactose 6-O-sulfotransferase and an N-acetylglucosamine 6-O-sulfotransferase as probes in an EST approach, we have identified a highly related cDNA in **human** and an apparent orthologue in mouse. The cDNAs predict type II transmembrane proteins that constitute new members of the Gal/GalNAc/GlcNAc 6-O-sulfotransferase (**GST**) family. Members of this family have previously been implicated in the sulfation of GAG chains within proteoglycans and the sulfation of O-linked chains within sialomucin ligands for l-selectin. Expression of the newly identified cDNA in COS cells led to the addition of sulfate to C-6 of GlcNAc in an acceptor glycoprotein. The tissue expression of transcripts corresponding to the cDNA was highly restricted to the small intestine and colon in **humans**. Based on these characteristics, the novel sulfotransferase is designated I-GlcNAc6ST for intestinal GlcNAc 6-O-sulfotransferase.

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(FILE 'HOME' ENTERED AT 08:55:37 ON 20 MAR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 08:56:09 ON 20 MAR 2002

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L1            8 S GLYCOSYL(A) SULFOTRANSFERASE?
L2        42005 S GST##
L3        18003 S HUMAN AND L2
L4          938 S GST(W)ALPHA
L5          613 S L3 AND L4
L6           38 S HUMAN (A)L4
L7           11 DUP REM L6 (27 DUPLICATES REMOVED)
L8            8 S L7 AND (CLON? OR EXPRESS? OR RECOMBINANT)
L9          420 S L4 AND (GENE? OR COD?)
L10          25 S L6 AND (GENE? OR CLON? OR CODING)
L11           7 DUP REM L10 (18 DUPLICATES REMOVED)
L12           0 S L11 AND (CELL (A)ADHES?)
                E ROSEN S/AU
L13         711 S E7-E8
L14           0 S L13 AND L6
L15          12 S L13 AND L3
L16           5 DUP REM L15 (7 DUPLICATES REMOVED)
                E LEE J/AU
                E LEE J K/AU
L17        3091 S E3
L18           0 S L17 AND L6
L19          17 S L17 AND L3
L20           6 DUP REM L19 (11 DUPLICATES REMOVED)
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	Document ID	Issue Date	Pages	Title
1	US 5776772 A	19980707	16	Method for producing secretable glycosyltransferases and other golgi processing enzymes
2	US 5541083 A	19960730	16	Method for producing secretable glycosyltransferases and other golgi processing enzymes
3	US 5047335 A	19910910	8	Process for controlling intracellular glycosylation of proteins
4	US 5032519 A	19910716	15	Method for producing secretable glycosyltransferases and other Golgi processing enzymes

	L #	Hits	Search Text
1	L1	10	gst adj alpha
2	L2	418	human adj "5" l1
3	L3	2	human adj5 l1
4	L4	2756	glycosyl$2
5	L5	0	l3 and l4
6	L6	0	l1 and l4
7	L7	0	l4 adj5 sukfotransferase$2
8	L8	2	l4 adj5 sulfotransferase$2
9	L9	12	l1 or l8
10	L10	10	l9 and (clon$3 or express$3 or recombinant)
11	L11	2	l10 and l4
12	L12	30343	lee.in.

	L #	Hits	Search Text
13	L13	44	l4 and l12
14	L14	4	l13 and sulfotransferase$2
15	L15	0	l14 and l1
16	L16	1440	rosen.in.
17	L17	0	l1 and l16
18	L18	11	l4 and l16
19	L19	2	sulfotransferase$2 and l18

	Document ID	Issue Date	Pages	Title
1	US 20010051370 A1		27	Glycosyl sulfotransferase-3
2	US 6265192 B1	20010724	26	Glycosly sulfortransferase-3